KRAMER ELECTRONICS LTD.

USER MANUAL

MODEL:

VA-2H
EDID Reader-Emulator

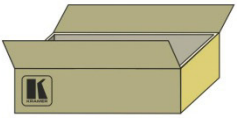
P/N: 2900-000677 Rev 3

VA-2H Quick Start Guide

This page guides you through a basic installation and first-time use of your **VA-2H**. For more detailed information, see the **VA-2H** user manual. You can download the latest manual at http://www.kramerelectronics.com.

Step 1: Check what's in the box

- **VA-2H** EDID Reader-Emulator
- 1 Power supply (12V DC)
- 4 Rubber feet
- 1 Quick Start sheet
- 1 User Manual



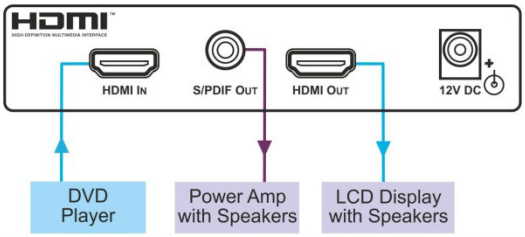
Save the original box and packaging materials in case you need to return your **VA-2H** for service.

Step 2: Install the VA-2H

Attach the rubber feet and place on a table or mount the machine in a rack (using an optional RK-3T rack mount).

Step 3: Connect the inputs and outputs

Always switch off the power on each device before connecting it to your **VA-2H**.

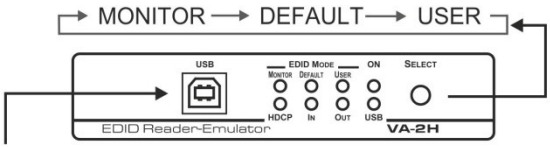


Always use Kramer high-performance cables for connecting AV equipment to the **VA-2H.**

Step 4: Connect the power

Connect the 12V DC power adapter to the **VA-2H** and plug the adapter into the mains electricity.

Step 5: Operate the VA-2H



1. Press and hold the SELECT button for 3 seconds to cycle through the EDID options.

2. Then press SELECT to choose the EDID to route to the input.

Or connect a computer to the USB port and operate the **VA-2H** using the EDID Designer.

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1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront video, audio, presentation, and broadcasting professionals on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better!

Our 1,000-plus different models now appear in 11 groups that are clearly defined by function: GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Routers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters and GROUP 11: Sierra Products.

Congratulations on purchasing your Kramer **VA-2H** *EDID Reader-Emulator*, which is ideal for creating, modifying and saving EDIDs on the computer.

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high-performance, high-resolution cables

Go to http://www.kramerelectronics.com to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

2.1 Achieving the Best Performance

To achieve the best performance:

- Use only good quality connection cables to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Do not secure the cables in tight bundles or roll the slack into tight coils
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality
- Position your Kramer **VA-2H** away from moisture, excessive sunlight and dust

Caution: No operator serviceable parts inside the unit

Warning: Use only the Kramer Electronics input power wall adapter that is provided with the unit

Warning: Disconnect the power and unplug the unit from the wall before installing

3 Overview

The **VA-2H** is a diagnostic and debugging tool for installers working with HDMI devices. The unit can switch three different EDIDs to the HDMI input. A software editor lets you manipulate various parameters of the EDID via the unit's USB port.

The **VA-2H** features:

- A maximum data rate of up to 6.75Gbps (2.25Gbps per graphic channel)
- An input resolution of up to 1080p @60Hz 36bit
- HDCP 1.1, and DVI 1.0 compliance
- HDMI support for Deep Color, x.v.Color™, Lip Sync, HDMI Uncompressed Audio Channels, Dolby TrueHD, DTS-HD
- I-EDIDPro™ Kramer Intelligent EDID Processing™, an Intelligent EDID handling and processing algorithm that ensures Plug and Play operation for HDMI systems
- Three EDID parameter modes – monitor, default and user
- Input, output and HDCP LED indicators
- Application software for manipulating the EDID data
- The last EDID mode (Monitor, Default or User) is saved in case of a sudden power interruption

3.1 Defining EDID

The Extended Display Identification Data (EDID) is a data-structure provided by a display, to describe its capabilities to a graphics card (that is connected to the display's source). The EDID enables the **VS-41HDCP** to "know" what kind of monitor is connected to the output. The EDID includes the manufacturer's name, the product type, the timing data supported by the display, the display size, luminance data and (for digital displays only) the pixel mapping data.
EDID is defined by a standard published by the Video Electronics Standards Association (VESA).

3.2 About HDCP—General Description

The High-Bandwidth Digital Content Protection (HDCP) standard developed by Intel, protects digital video and audio signals transmitted over DVI or HDMI connections between two HDCP-enabled devices to eliminate the reproduction of copyrighted material. To protect copyright holders (such as movie studios) from having their programs copied and shared, the HDCP standard provides for the secure and encrypted transmission of digital signals.

3.3 About HDMI—General Description

High-Definition Multimedia Interface (HDMI) is an uncompressed all-digital audio/video interface, widely supported in the entertainment and home cinema industry. HDMI ensures an all-digital rendering of video without the losses associated with analog interfaces and their unnecessary digital-to-analog conversions. It delivers the maximum high-definition image and sound quality in use today. Note that Kramer Electronics Limited is an HDMI Adopter and an HDCP Licensee.

HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI licensing LLC.

In particular, HDMI:

- Provides a simple interface between any audio/video source, such as a set-top box, DVD player, or A/V receiver and video monitor, such as a digital flat LCD / plasma television (DTV), over a single lengthy cable

  SIMPLICITY - With video and multi-channel audio combined into a single cable, the cost, complexity, and confusion of multiple cables currently used in A/V systems is reduced
  LENGTHY CABLE - HDMI technology has been designed to use standard copper cable construction at up to 15m

- Supports standard, enhanced, high-definition video, and multi-channel digital audio on a single cable

  MULTI-CHANNEL DIGITAL AUDIO - HDMI supports multiple audio formats, from standard stereo to multi-channel surround-sound. HDMI has the capacity to support Dolby 5.1 audio and high-resolution audio formats

- Transmits all ATSC HDTV standards and supports 8-channel digital audio, with bandwidth to spare to accommodate future enhancements and requirements

- Benefits consumers by providing superior, uncompressed digital video quality via a single cable, and user-friendly connector

  HDMI provides the quality and functionality of a digital interface while also supporting uncompressed video formats in a simple, cost-effective manner

- Is backward-compatible with DVI (Digital Visual Interface)
- Supports CEC, two-way communication between the video source (such as a DVD player) and the digital television, enabling new functionality such as automatic configuration and one-button play
- Has the capacity to support existing high-definition video formats (720p, 1080i, and 1080p, 2K and 4K), standard definition formats such as NTSC or PAL, as well as 480p and 576p

3.4 Defining the VA-2H EDID Reader-Emulator

This section defines the **VA-2H**.

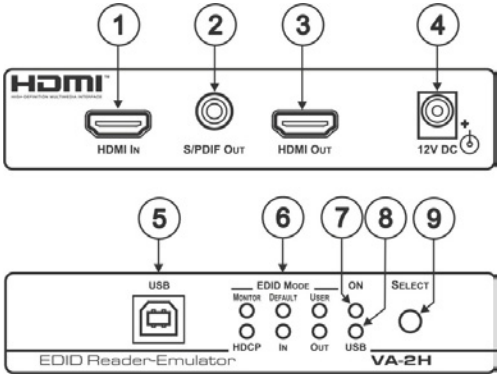


Figure 1: VA-2H EDID Reader-Emulator

#	Feature		Function
1	*HDMI IN* Connector		Connects to an HDMI source
2	*S/PDIF OUT* RCA Connector		Connects to a digital audio acceptor (S/PDIF)
3	*HDMI OUT* Connector		Connects to an HDMI acceptor
4	*12V DC* Connector		+12V DC for powering the unit
5	*USB* Connector		Connects to a computer
6	*EDID MODE* LEDs	*MONITOR*	Lights when the monitor EDID is passed to the input
		DEFAULT	Lights when the default EDID is passed to the input
		USER	Lights when the user EDID is passed to the input
		HDCP	Lights when HDCP is detected on the input
		IN	Lights when an active device is connected to the input
		OUT	Lights when an active device is connected to the output
7	*ON* LED		Lights green when receiving power
8	*USB* LED		Lights green when a USB source is connected
9	*SELECT* Button		Press to cycle through and select the EDID mode

4 Connecting the VA-2H

Always switch off the power to each device before connecting it to your **VA-2H**. After connecting your **VA-2H**, connect its power and then switch on the power to each device.

To connect the **VA-2H** as illustrated in the example in Figure 2:

1. Connect an input source (for example, a DVD player) to the HDMI IN connector.
2. Connect the HDMI OUT connector to the acceptor (for example, an LCD display).
3. If needed, connect the S/PDIF RCA connector to a digital audio acceptor (for example, a power amplifier with speakers).
4. If making changes to the EDID parameters, connect the USB connector to a computer.
5. Connect the power adapter to the 12V DC connector, plug the adapter into the mains and power on all external devices.

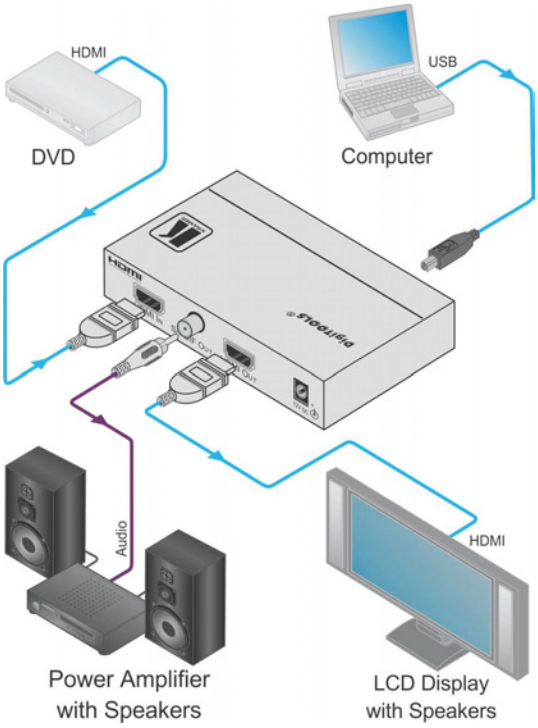


Figure 2: Connecting the VA-2H EDID Reader-Emulator

5 Operating the VA-2H

You can operate the **VA-2H** in two ways, from the:

- Front panel (see Section 5.1)
- EDID Designer (see Section 5.2)

5.1 Operating from the Front Panel

You can operate the **VA-2H** from the front panel as follows:

1. Press and hold the SELECT button, for 3 seconds, to cycle through the EDID options:

2. Press the SELECT button to select the desired EDID option:
    - When MONITOR is selected, the MONITOR LED illuminates and the EDID from the display is routed to the input port
    - When DEFAULT is selected, the DEFAULT LED illuminates and the default EDID is routed to the input port
    - When USER is selected, the USER LED illuminates and the user EDID is routed to the input port. The user EDID can be created and modified using the EDID Designer (see Section 5.2)

5.2 Operating from the EDID Designer

The EDID designer application software can be used to manipulate the EDID data.

To operate the **VA-2H** from the EDID Designer, navigate to *Command* > *Set Device Mode* and choose the mode: *OUTPUT*, *DEFAULT* or *USER*.

For a full description of how to setup and use the EDID Designer, see Section 6.

6 The EDID Designer

The EDID Designer is a PC-based program for use with the **VA-2H**.
It lets you create, modify and save EDIDs on the computer and to download the EDID to USER memory and operate the **VA-2H**. It gives the AV technician a strong and flexible troubleshooting tool for diagnosing display problems.

To use the **VA-2H** EDID Designer you must:

- Download and install the USB driver (see section 6.1)
- Download and install the EDID Designer software (see section 6.2)

You can then use the EDID Designer (see section 6.3).

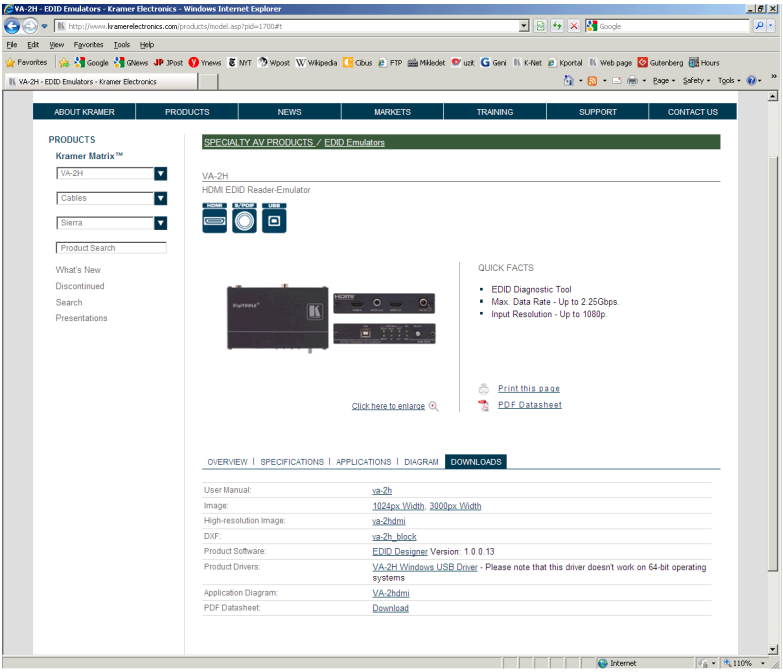
6.1 Installing the USB Driver

Note: Currently the driver only works on 32-bit systems.

To install the **VA-2H** USB driver, do the following:

This procedure illustrates the installation on Windows® XP.

1. Navigate to the Kramer Web site, search for the product **VA-2H** and click the Downloads tab. The following screen appears:



2. Download the *VA-2H Windows USB Driver* and the *EDID Designer* from the Kramer Web site to a designated folder on your computer.

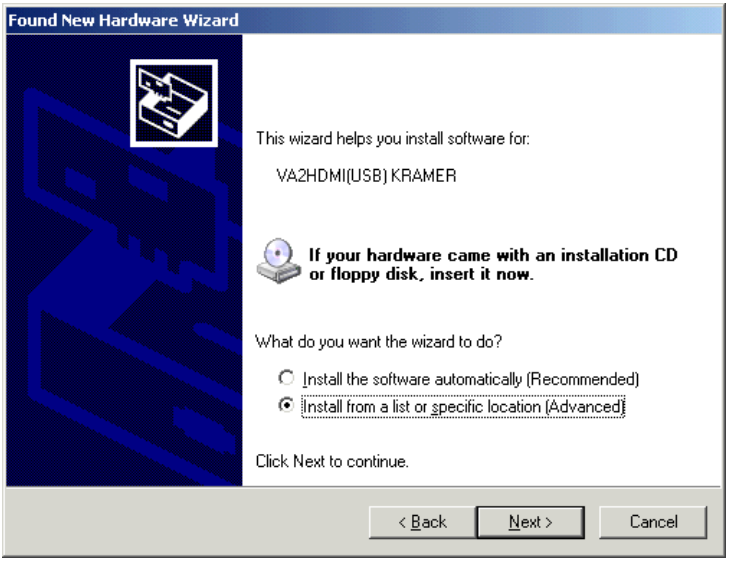
3. Extract the two zipped USB driver files to your designated folder.

4. Connect the USB cable between your computer and the **VA-2H**.

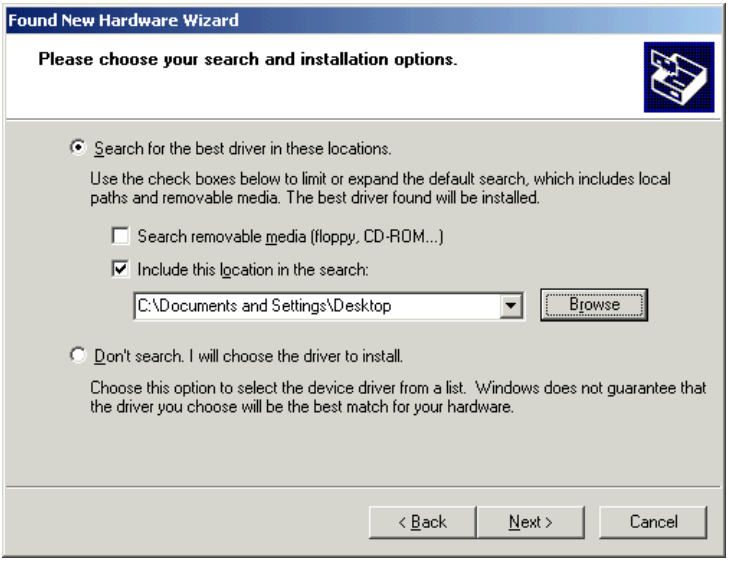
5. Connect the power supply to the **VA-2H**.

6. After a few seconds the *"Found New Hardware*" message appears on your screen and the following window opens:

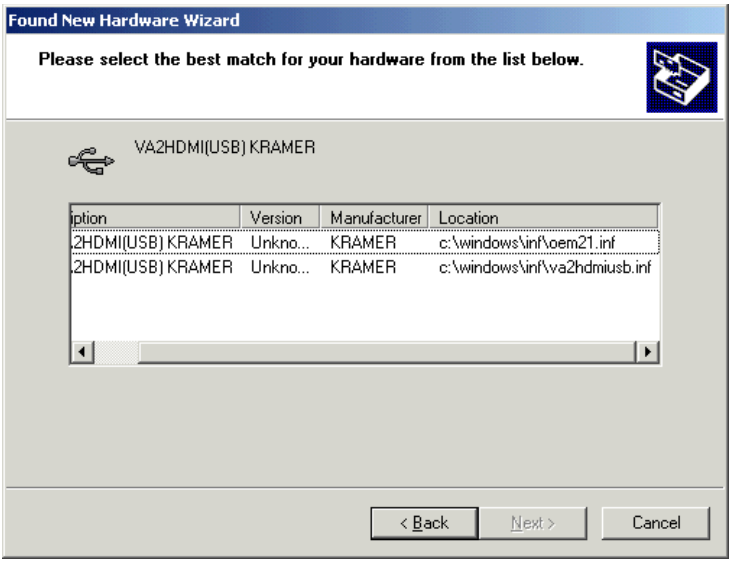
7. When asked *"Can Windows connect to Windows Update to search for software?"* select *"No, not this time"* and click **Next**.
   The following screen appears:



8. Select *"Install from a list or specific location (Advanced)"* and click **Next**.
   The following screen appears:

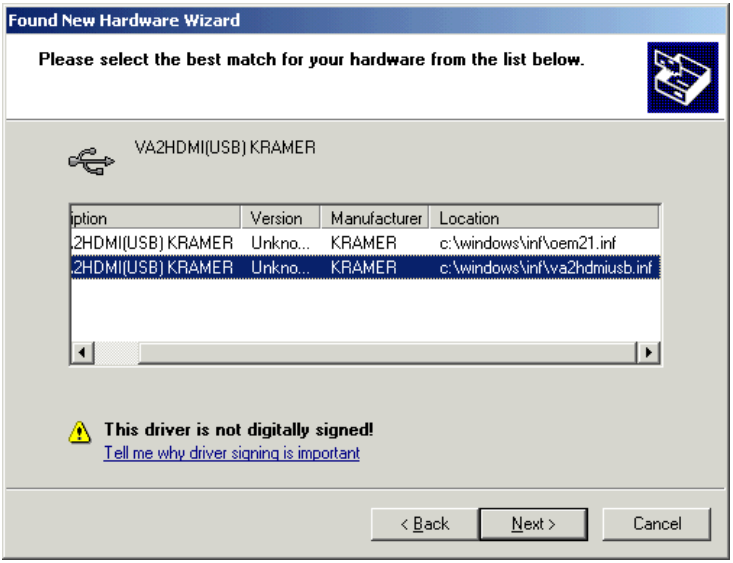


9. Select *"Search for the best driver in these locations"* and check *"Include this location in the search"*. Browse to your previously designated folder (in this example, the desktop). Click **Next**.
   The following screen appears:



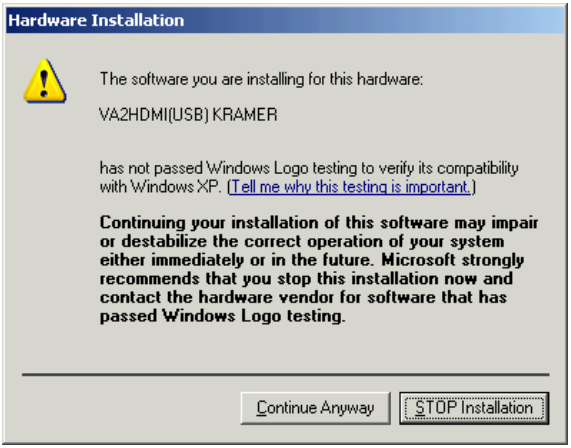
10. Select the file *c:\windows\inf\va2hdmiusb.inf*.

    The following window appears:



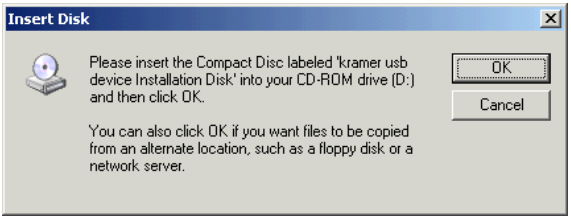
11. The warning *"This driver is not digitally signed!"* appears. Click **Next**.

    The following window appears:



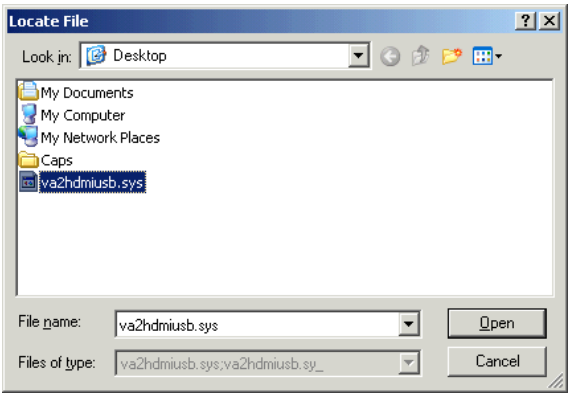
12. Ignore the warning. Click **Continue Anyway**.

    The following window appears:

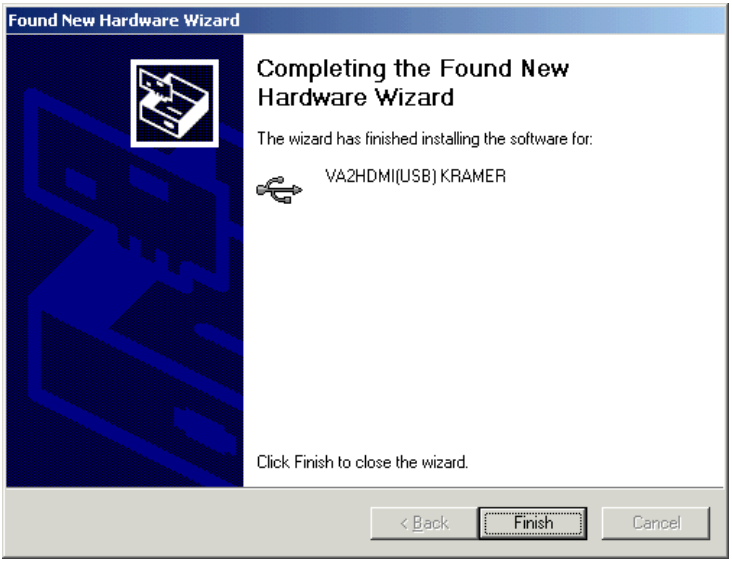


13. Do not insert a CD. Click **OK**.

    The following window appears:



14. Select the file *va2hdmiusb.sys*. Click **Open**. The driver installs and when finished the following window appears:



15. The USB driver has been successfully installed and you can install the EDID Designer software.

6.2 Installing the EDID Designer

To install the EDID Designer, do the following:

1. Navigate to the designated folder to which you downloaded the EDID Designer in the previous section. Double-click the file *setup.exe* from this folder or from the distribution media included with the **VA-2H**.

2. After the installation completes, navigate to *Start* > *Programs* > *Kramer* > *EDID Designer* and run the EDID Designer. The main window opens:

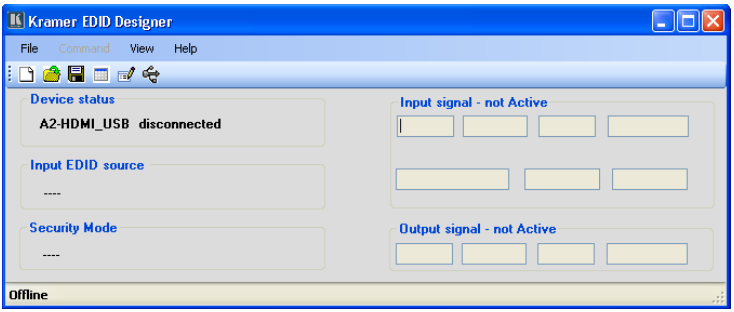


Figure 3: EDID Designer Main Window – Limited View

3. Connect a USB cable from your PC to the USB connector on the **VA-2H**.

4. To begin communication, click the button or menu item *File > Connect USB*.
   The Device Status on the main window changes to *USB was found* and at the lower left corner of the Main Window changes to *Online*.

6.3 Using the EDID Designer

To see the entire window and access all the EDID parameters, click *View > Extended View*. The main window, extended view appears:

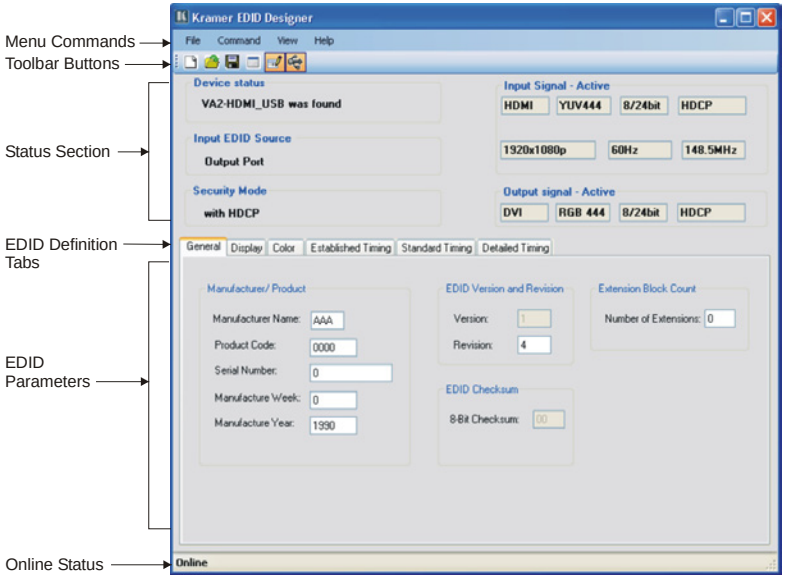


Figure 4: EDID Designer Main Window – Extended View

The main window contains the following elements:

Menu commands, see Section 6.3.1

Toolbar buttons, see Section 6.3.2

Status section, see Section 6.3.3

EDID definition tabs and EDID parameters, see Section 6.3.4

Online status, see Section 6.3.5

6.3.1 Menu Commands

The following table describes the menu items of the EDID Designer.

Menu	Item	Description
File	Connect USB	Connects or disconnects the USB
	New EDID	Creates a new EDID
	Open EDID	Opens an existing EDID
	Close EDID	Closes the existing EDID without saving
	Save EDID	Saves the current EDID
	Save EDID as…	Saves the current EDID with a different name or to a new location on disk
	Exit	Closes the EDID Designer

Menu	Item	Description
Command	Set Device Mode	As if pressing the SELECT button, sets the device mode to *Output*, *Default* or *User*
	Load EDID from	Loads the EDID to the EDID Designer from *Output*, *Default* ,*User or Input*
	Download EDID to	Loads the EDID from the EDID Designer to the *In Port* or *User* memory
	Security Mode	*With HDCP* passes HDCP encoding, *Without HDCP* turns off HDCP encoding for 60 seconds only to allow the signal that is not encoded to pass
	Reset	Resets the device
View	Extended View	Expands the window to show the EDID definition tabs
	Limited View	Shrinks the window to hide the EDID definition tabs
	Edit EDID	Select read only/modify
	Byte Viewer	Displays the Byte Viewer window
Help	About	Displays the version of the EDID Designer

6.3.2 Toolbar Buttons

The following table describes the toolbar buttons of the EDID Designer.

Button	Description
	Creates a new EDID for editing
	Opens an existing EDID from the disk
	Saves the current EDID to the disk
	Displays the Byte Viewer window to edit the hex codes
	Toggles Read-only/Modify, to disallow or allow editing of the EDID
	Connects or disconnects the USB connection to the computer

6.3.3 Status Section

The following table describes the status section of the EDID Designer.

Field	Description
Device Status	Indicates if the USB connection has been detected or is disconnected
Input EDID Source	Indicates the EDID source
Security Mode	Indicates if HDCP is active or blocked (for 60 seconds)
Input Signal	Indicates if active or inactive
Output Signal	Indicates if active or inactive

6.3.4 EDID Definition Tabs and Parameters

The following table describes the EDID definition tabs. The EDID parameters shown for each tab are only illustrated in Figure 5 to Figure 10.

For full information about the EDID definitions found in the EDID parameter sections, refer to the VESA Enhanced Extended Display Identification Data Standard.

Tab	Description	See
General	Contains general definitions about the display and its EDID	Figure 5
Display	Contains detailed definitions of the video input and the image size	Figure 6
Color	Contains detailed definitions of color support	Figure 7
Established Timing	Contains detailed definitions of resolution and timing	Figure 8
Standard Timing	Allows the user to define 8 preset timing schemes	Figure 9
Detailed Timing	Allows the user to define detailed timing schemes	Figure 10

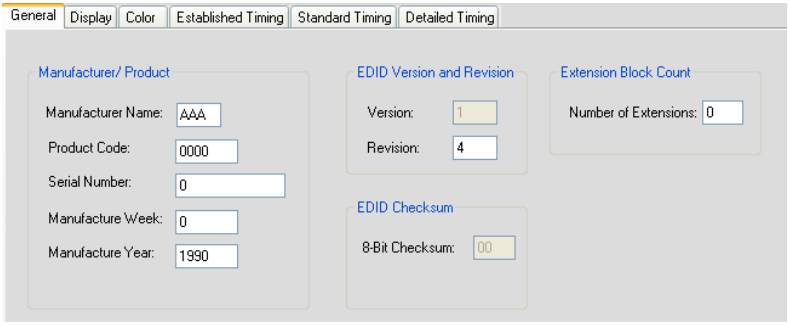


Figure 5: EDID Designer – General Tab

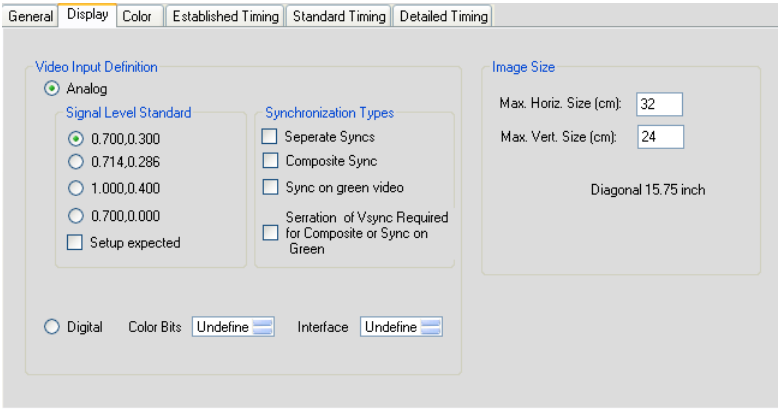


Figure 6: EDID Designer – Display Tab

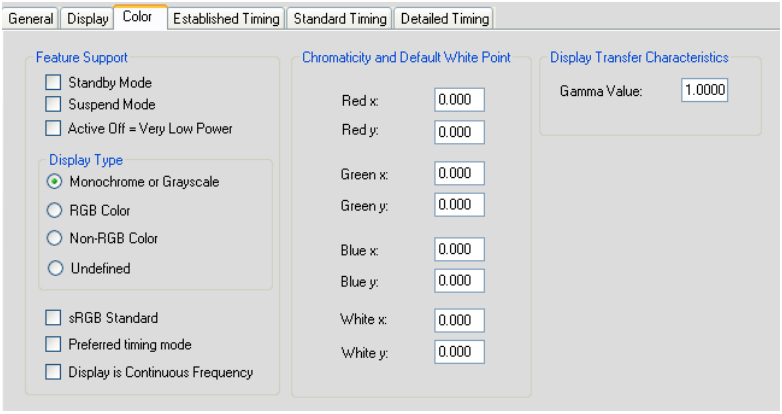


Figure 7: EDID Designer – Color Tab

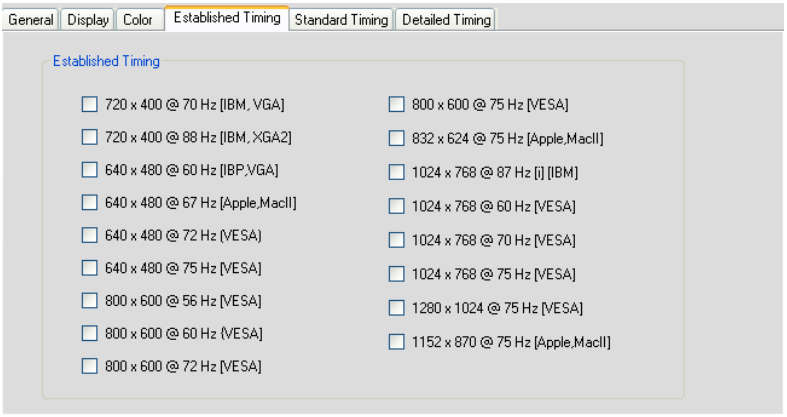


Figure 8: EDID Designer – Established Timing Tab

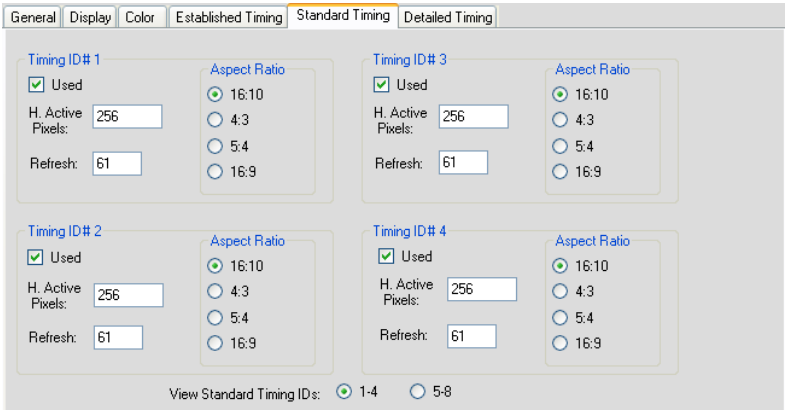


Figure 9: EDID Designer – Standard Timing Tab

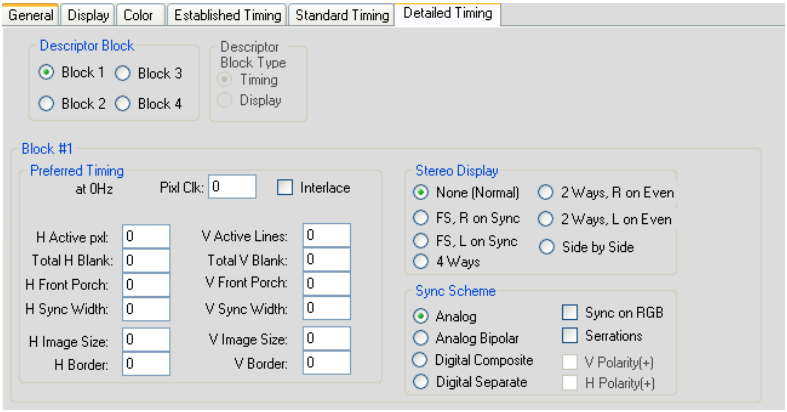


Figure 10: EDID Designer – Detailed Timing Tab

6.3.5 Online Status

The online status indicates whether the **VA-2H** is *Online* and available for downloading, uploading or operation or is *Offline*.

7 Technical Specifications

INPUT:	1 HDMI connector
OUTPUTS:	1 HDMI connector; 1 S/PDIF digital audio on an RCA connector
PORT:	1 USB connector
BANDWIDTH:	Supports up to 2.25Gbps bandwidth per graphic channel
COMPLIANCE WITH HDMI STANDARD:	Supports HDMI and HDCP
RESOLUTION:	Up to UXGA; 1080p, 36bit
POWER SOURCE:	12V DC, 410mA
CONTROLS:	SELECT button, EDID MODE LEDs
OPERATING TEMPERATURE:	0° to +55°C (32° to 131°F)
STORAGE TEMPERATURE:	-45° to +72°C (-49° to 162°F)
HUMIDITY:	10% to 90%, RHL non-condensing
DIMENSIONS:	12cm x 7.2cm x 2.4cm (4.7" x 2.8" x 1.0") W, D, H
WEIGHT:	0.3kg (0.7lbs)
ACCESSORIES:	Power supply, power cord, Windows®-based control software
OPTIONS:	RK-3T 19” rack mount adapter
Specifications are subject to change without notice at http://www.kramerelectronics.com	

LIMITED WARRANTY

The warranty obligations of Kramer Electronics for this product are limited to the terms set forth below:

What is Covered

This limited warranty covers defects in materials and workmanship in this product.

What is Not Covered

This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Kramer Electronics to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover cartons, equipment enclosures, cables or accessories used in conjunction with this product.

Without limiting any other exclusion herein, Kramer Electronics does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

How Long Does this Coverage Last

Three years as of this printing; please check our Web site for the most current and accurate warranty information.

Who is Covered

Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.

What Kramer Electronics will do

Kramer Electronics will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:

1. Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labor to complete the repair and restore this product to its proper operating condition. Kramer Electronics will also pay the shipping costs necessary to return this product once the repair is complete.
2. Replace this product with a direct replacement or with a similar product deemed by Kramer Electronics to perform substantially the same function as the original product.
3. Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

What Kramer Electronics will not do Under This Limited Warranty

If this product is returned to Kramer Electronics or the authorized dealer from which it was purchased or any other party authorized to repair Kramer Electronics products, this product must be insured during shipment, with the insurance and shipping charges prepaid by you. If this product is returned uninsured, you assume all risks of loss or damage during shipment. Kramer Electronics will not be responsible for any costs related to the removal or re-installation of this product from or into any installation. Kramer Electronics will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.

How to Obtain a Remedy under this Limited Warranty

To obtain a remedy under this limited warranty, you must contact either the authorized Kramer Electronics reseller from whom you purchased this product or the Kramer Electronics office nearest you. For a list of authorized Kramer Electronics resellers and/or Kramer Electronics authorized service providers, please visit our web site at www.kramerelectronics.com or contact the Kramer Electronics office nearest you.

In order to pursue any remedy under this limited warranty, you must possess an original, dated receipt as proof of purchase from an authorized Kramer Electronics reseller. If this product is returned under this limited warranty, a return authorization number, obtained from Kramer Electronics, will be required. You may also be directed to an authorized reseller or a person authorized by Kramer Electronics to repair the product.

If it is decided that this product should be returned directly to Kramer Electronics, this product should be properly packed, preferably in the original carton, for shipping. Cartons not bearing a return authorization number will be refused.

Limitation on Liability

THE MAXIMUM LIABILITY OF KRAMER ELECTRONICS UNDER THIS LIMITED WARRANTY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE PAID FOR THE PRODUCT. TO THE MAXIMUM EXTENT PERMITTED BY LAW, KRAMER ELECTRONICS IS NOT RESPONSIBLE FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY. Some countries, districts or states do not allow the exclusion or limitation of relief, special, incidental, consequential or indirect damages, or the limitation of liability to specified amounts, so the above limitations or exclusions may not apply to you.

Exclusive Remedy

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IF ANY PRODUCT TO WHICH THIS LIMITED WARRANTY APPLIES IS A "CONSUMER PRODUCT" UNDER THE MAGNUSON-MOSS WARRANTY ACT (15 U.S.C.A. §2301, ET SEQ.) OR OTHER APPICABLE LAW, THE FOREGOING DISCLAIMER OF IMPLIED WARRANTIES SHALL NOT APPLY TO YOU, AND ALL IMPLIED WARRANTIES ON THIS PRODUCT, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR THE PARTICULAR PURPOSE, SHALL APPLY AS PROVIDED UNDER APPLICABLE LAW.

Other Conditions

This limited warranty gives you specific legal rights, and you may have other rights which vary from country to country or state to state.

This limited warranty is void if (i) the label bearing the serial number of this product has been removed or defaced, (ii) the product is not distributed by Kramer Electronics or (iii) this product is not purchased from an authorized Kramer Electronics reseller. If you are unsure whether a reseller is an authorized Kramer Electronics reseller, please visit our Web site at www.kramerelectronics.com or contact a Kramer Electronics office from the list at the end of this document.

Your rights under this limited warranty are not diminished if you do not complete and return the product registration form or complete and submit the online product registration form. Kramer Electronics thanks you for purchasing a Kramer Electronics product. We hope it will give you years of satisfaction.

For the latest information on our products and a list of Kramer distributors, visit our Web site where updates to this user manual may be found.

We welcome your questions, comments, and feedback.
Web site: www.kramerelectronics.com
E-mail: info@kramerel.com

SAFETY WARNING
Disconnect the unit from the power supply before opening and servicing

P/N: 2900-000677 Rev: 3